

IMAMALIYEV, G.N.

Effect of instantaneous gamma and fast neutron irradiation  
of cuttings on the growth, development and morphological  
variability of the Vladimirovka cherry. Radiobiologiya 3  
no. 6:909-914 '63. (MIRA 17:7)

1. Institut biologicheskoy fiziki AN SSSR, Moskva.

IMANALIYEV, M.

Behavior of solutions of the generalized boundary problem of  
a nonlinear integrodifferential equation with a small parameter  
for the higher derivative. Izv. AN Kir.SSR no.4:137-156  
'57. (MLRA 10:7)

(Integral equations) (Differential equations)

IMANALIYEV M

Behavior of sequence solutions of nonlinear and linear integro-differential equations of the Volterra type with a small parameter for the higher derivative. Izv. AN Kir.SSR no.4:157-188 (MIRA 10:7) '57.

(Integral equations) (Differential equations)

8/044/62/000/003/039/092  
C111/C444

16.4500

AUTHOR:  
TITLE:

Imanaliyev, M.

On the behaviour of the solutions of a class of non-linear boundary value problems for an integro-differential equation with a small parameter at the highest derivative

PERIODICAL:

Referativnyy zhurnal, Matematika, no. 3, 1962, 71, abstract 3B298. ("Izv. AN Kirg SSR," 1958, vyp. 6, 89-96)

TEXT:

For the boundary value problem

$$\begin{aligned} & \epsilon u''(x) + au'(x) = \\ & -\lambda \left[ f(x, u) + \int_0^1 K(x, t) f_1(t, u(t)) dt \right], \\ & u'(0) = \lambda \left[ f(0, 0) + \int_0^1 K(0, t) f_1(t, u(t)) dt \right], \\ & u(1) = u(x) = 0, \quad (a > 0), \end{aligned} \quad (1)$$

where  $\epsilon$  is the parameter, it is proved: 1.) for sufficiently small  $\lambda$  there exists a unique solution, if  $f$ ,  $f_1$  and  $K$  are continuous, satisfying Card 1/2

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N.3400

16.4500

S/044/60/000/007/016/058  
C111/C222

AUTHOR: Imanaliyev, M.

TITLE: On odd periodic solutions of equations of fourth order

PERIODICAL: Referativnyy zhurnal. Matematika, no.7, 1960, 85.  
Abstract/no.7571. In sb.: Materialy 8-y Nauchn.konferentsii  
professorsko-prepodavat. sostava Fiz.-matem.fak. (Kirg.  
un-t), Frunze, 1959, 19-21

TEXT: It is said that with the method of successive approximation it  
can be shown that the boundary value problem

$$y^{(IV)}(x) = f(x, y, y', y'', y''')$$

$$y(0) = y(\pi) = y''(0) = y''(\pi) = 0$$

has a unique odd periodic solution if the function  $f(x, y, y', y'', y''')$  is  
continuous in the region  $0 \leq x \leq \pi$ ,  $-\infty < y^{(i)} < \infty$ , and in the variables  
 $y, y', y'', y'''$  it satisfies the Lipschitz condition with a sufficiently  
small Lipschitz constant.

Reviewer's remark: The author's assertion that this solution is un-  
conditionally periodic, i.e.  $y(x+2\pi) = y(x)$ , is incorrect since the

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S/044/60/000/007/033/058  
C111/C222

16.4500

AUTHOR:

Imanaliyev, M.

TITLE:

On the behavior of positive solutions of a class of non-linear boundary value problems for an integro-differential equation with a small parameter for the highest derivative

PERIODICAL: Referativnyy zhurnal. Matematika, no.7, 1960, 128.  
Abstract no.7762. In sb: Materialy 8-y Nauchn.konferentsii professorsko-prepodavat. sostava Fiz.-matem.fak. (Kirovskiy un-t). Frunze, 1959, 17-19

TEXT: Without proof the author gives sufficient conditions for the existence of positive greatest and least solutions of the boundary value problem

$$y(c, \varepsilon) = A; \quad \varepsilon y'(c, \varepsilon) = \int_c^b K(c, t, y) dt + f(c, A) + \varphi(c)$$

$$\varepsilon y'' + \varepsilon y' = f(x, y) + \int_c^b K(x, t, y) dt + \varphi(x),$$

which for  $\varepsilon \rightarrow 0$  tend to the greatest and least positive solution,  
Card 1/2

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On the behavior of positive...

S/044/60/000/007/033/058  
C111/C222

respectively, of the degenerated problem

$$av'(x) = f(x, v) + \int_c^b K(x, t, v) dt + \varphi(x); \quad v(c) = A.$$

[Abstracter's note: The above text is a full translation of the original Soviet abstract.]

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S/044/60/000/007/036/058  
C111/0222

16.4500

AUTHOR:

Imanaliyev, M.

TITLE:

On the Cauchy problem for a class of nonlinear integro-differential equations with a small parameter for the highest derivative

PERIODICAL:

Referativnyy zhurnal. Matematika, no.7, 1960, 129.  
Abstract no.7766. In sb: Materialy 8-y Nauchn.konferentsii professorsko-prepodavat.sostava Fiz.-matem.fak. (Kirov-un-t). Frunze, 1959, 15-17

TEXT: Without proof the author gives sufficient conditions for the existence and uniqueness of the solution of the Cauchy problem for the equation

$$\varepsilon y''(y, \varepsilon) + ay'(x, \varepsilon) = (x-a)^m \left[ f(x, y) + \int_a^b K(x, t) f_1(t, y) dt \right]$$

with the initial conditions

$$y(a) = A; \quad y'(a) = B_1 c^{-amc/\varepsilon},$$

where a, m, c,  $\varepsilon$  are positive constants. Furthermore the author gives

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S/044/60/000/007/036/058  
C111/C222

On the Cauchy problem...

sufficient conditions that the solution  $y(x, \xi)$  for  $\xi \rightarrow 0$  converges  
to the solution of the degenerated problem

$$av'(x) = (x-a)^m \left[ f(x, v) + \int_a^b K(x, t) f_1(t, v) dt \right]$$

$$v(a) = A.$$

[Abstracter's note: The above text is a full translation of the original  
Soviet abstract.]

Card 2/2

IMANALIYEV, M.

Behavior of one class of positive solutions to a nonlinear boundary value problem for an integrodifferential equation containing a small parameter with a leading derivative. *Dokl. Akad. Nauk Kir. SSR, Ser. est. i tekhn. nauk* 1 no.3:3-15 '59. (MIRA 14:9)

(Boundary value problems) (Integrodifferential equations)

IMANALIYEV, M.

Differentiation of one class of solutions to a nonlinear boundary  
value problem. Izv. AN Kir. SSR. Ser. est. i tekhn. nauk 1 no.3:  
17-28 '59. (MIRA 14:9)  
(Boundary value problems) (Differential equations)

IMANALIYEV, M.

Cauchy's problem for one class of nonlinear integrodifferential equations containing a small parameter with a leading derivative.  
Izv. AN Kir. SSR. Ser. est. i tekhn. nauk 1 no. 3:29-44 '59.

(MIRA 14:9)

(Integrodifferential equations) (Boundary value problems)

IMANALIYEV, I.M.

FRASE I BOOK EXPLANATION SW/3618

Academy of Sciences Kirgiz SSR

Izvestiya. Seriya yestestvennykh i tekhnicheskikh nauk, tom 1, vyp. 1 (Izvestiya. Series on Natural and Technical Sciences, Vol 1, No. 1) Frunze, 1959. 164 p. 500 copies printed.

Ed.: P.T. Kashirina; Tech. Ed.: M.G. Anochina.

PURPOSE: This book is intended for research scientists and teachers in institutes of higher education who may be interested in developments and research trends in various scientific fields.

COVERAGE: The book contains 12 articles by persons affiliated with the Academy of Sciences Kirgiz SSR on studies in physical chemistry, industrial chemistry, applied physics (blast dynamics), electric power engineering, electronics, agronomy, metallurgy, pure mathematics, etc. A bibliography of 1957 publications of the Academy includes works on history, archaeology, botany, linguistics, literature, medicine, meteorology, zoology, and technology. References accompany most of the articles.

Author(s): G.B. K.P. Shalikhina, and T.A. Melnikova, Tur-  
kicistric Determination of Pectin

Zakharov, K.P. Determination of the Saturation Coefficient of  
Feed Moisture 43

Danubev, P.A., and M.Z. Turevskikh. Effect of the Weight of an  
Explosive Charge on the Scattering Speed of Ground Particles  
During Blasting 57

Lebedev, M.M. Electric Power Systems in High Mountainous Regions 69

Philippov, M.A. Methods of Transformation of Time Functions With  
Time 85

Rukalo, V.Ye. Indices of Moisture Adequacy in Kirgiz Pasture  
Lands 93

Butov, V.M., M.A. Zamanliova, A.V. Poltavsky, and M.Z. Turevskiy.  
X-Ray Study of the Thermal Effect on Steel Samples Hardened After  
Surface Heating by High-Frequency Current 111

Kozlov, M.M., A.V. Poltavsky, and M.Z. Turevskiy. X-Ray Study  
of Fragmentation and Train Performance in Blast Loading 123

Demidov, N. General Boundary Value Problem for a Nonlinear  
Integro-Differential Equation With Small Parameter at the Highest  
Derivative 129

Author(s): G.B. K.P. Shalikhina, and T.A. Melnikova. Bibliography of Publications  
of the Kirgiz SSR Academy of Sciences in 1957 135

AVAILABLE: Library of Congress (Q 60.A516A2) 17

5/757/61/000/001/003/010

AUTHOR: Imanaliyev, M.

TITLE: On the behavior of the solutions of integro-differential equations having a small parameter before the derivative.

SOURCE: Akademiya nauk Kirgizskoy SSR. Institut fiziki, matematiki i mekhaniki. Issledovaniya po integro-differentsial'nym uravneniyam v Kirgizii. no. 1. Frunze, 1961, 133-137.

TEXT: This paper follows several recent Soviet studies (Tikhonov, A. N., Mat. sbornik, v. 22, no. 64, 1948; Gradshteyn, I. S., Mat. sb., v. 33, 1952; Pontryagin, L. S., Akad. nauk SSSR, Izv., ser. matem., v. 21, 1957) on the theory of differential equations with a small parameter before the highest derivative and a few such studies on the theory of integro-differential equations with a small parameter before the highest derivative (Yu-Why Tschen, Compositio Mathematica, v. 2, 1953, 378-401; Imanaliyev, M., On the behavior of the solutions of integro-differential equations with a small parameter before the highest derivative - in Russian; Conference of the teaching staff of the School of Physics and Mathematics of the Kirgiz State University in honor of the 40th Anniversary of the Great Socialist October Revolution. Frunze, 1957). The specific objective of this paper is a study of the behavior of the solutions of the nonlinear system of integro-differential equations: ✓

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On the behavior of the solutions of integro-differential... S/157/61/000/001/003/010

$$\begin{aligned} \frac{du}{dx} &= A(x)u + F(x, u, z) + \int_0^x e^{-(x-t)} K(x, t, u(t), z(t)) dt \\ \frac{dz}{dx} + Q(x)z &= M(x, u, z) + \int_0^x e^{-(x-t)} R(x, t, u, z) dt, \end{aligned} \quad (1)$$

where (1)  $A(x)$  is an  $n$ -quadratic matrix; (2)  $u$ ,  $F$ , and  $K$  are  $n$ -dimensional vectors; (3)  $z$ ,  $M$ , and  $R$  are  $m$ -dimensional vectors; (4)  $Q(x)$  is a positive function with the stipulation that  $Q(x) \gg 0$  for all values  $x \gg 0$ ; (5)  $\epsilon > 0$  is a parameter. Two theorems, establishing the unique, continuous solution of the Cauchy problem  $v(0) = v^0$  under fulfillment of two specified conditions, are demonstrated. There are 7 references (6 Russian-language Soviet and 1 German).

ASSOCIATION: None given.

SUBMITTED: First presented at the Republic of Kazakhstan Mathematical Conference, October 1959.

Card 2/2

S/757/61/000/001/004/010

AUTHOR: Imanaliyev, M.

TITLE: On periodic solutions of nonlinear systems of integro-differential equations with a small parameter.

SOURCE: Akademiya nauk Kirgizskoy SSR. Institut fiziki, matematiki i mekhaniki. Issledovaniya po integro-differentsial'nym uravneniyam v Kirgizii. no.1. Frunze, 1961, 139-144.

TEXT: A number of problems in physics and engineering necessitates the study of the behavior of the solutions of systems of integro-differential equations that contain a small parameter before the derivative. The present paper proves the existence of a periodic solution of the system of integro-differential equations

$$\frac{du}{dx} + pu = F(x, u, z) + \int_0^{\theta} K(x, t, u, z) dt, \quad (1)$$

$$\frac{dz}{dx} + gz = M(x, u, z) + \int_0^{\theta} Q(x, t, u, z) dt,$$

Card 1/2



On periodic solutions of nonlinear systems

3/787/61/000/001/004/12

and then investigates the behaviour of this solution as  $\epsilon \rightarrow 0$ . In the system (1)  $F, K$ , and  $u$  designate  $n$ -dimensional vectors,  $M, Q$ , and  $z$  are  $m$ -dimensional vectors;  $p$  and  $g$  are nonzero constants. It is assumed that  $F, K, M$ , and  $Q$  are continuous functions, periodic relative to the argument  $x$  with a period  $\omega$ , and wherein  $\epsilon \gg 0$ .

ASSOCIATION: N. S. Kuznetsov

SUBMITTED: 1978, presented at the 10th All-Union Symposium on Mathematical Physics, Moscow, October 1978

Card 2/2

FOR INFORMATION  
507/6796

**Handlung und Dialog des, "Taubst."** In List mathematisch & physikalisch

[illegible]

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Email: [info@spenceragency.co.nz](mailto:info@spenceragency.co.nz)

Boys: J. B. Kennedy, Corresponding Member, Academy of Sciences USSR; 217, Bagrationovskaya Street, M-1, Gorky.

**REMARKS:** This collection of articles is intended for publication, not for circulation and should not be distributed outside the office.

**INFORMATION ON STRUCTURES AND POLITICAL STATUS OF HIGHER EDUCATION.**

**CONTENTS:** The collected contains 17 articles dealing with the results of research on the theory of information communication and its application.

the country is suffering, and the problem is the best approach to take. The United States is a free country, and the problem is the best approach to take.

interest, physical fitness, etc. In personellistics are small events. In personellistics are small events. In personellistics are small events.

# THE JOURNAL OF THE ROYAL ANTHROPOLOGICAL INSTITUTE

5. Substratum, Tully and P. S. Sedgwick. On the Thirtieth Floor of a Viscous Immenseible Plastic Glass in a Factory West

7. **Tennant, A.J.** On the Atomistic Behavior of Solutions of Tobacco

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to the following being sought for Equation (1) - (1.2)

## 9. Exercises 4-9. Solving Boundary Problems of Laplace Equations by an

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12. ~~Travis, J.D.~~ On the Motion of an Anticubicle After a Lateral Impact 289

Section 1.5. The Cayley Method in the Proof of the Existence  
Theorem

14. Subsection 7.5. On the Functions Connected with the Functions

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## References

6. Koelliker, N.K. Solving a Koelliker Parabolic Equation 243

7. They, I.Y., in the Separation of Spherical Coordinates in Equations

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[illegible]

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I MANAKIYEV M.

S/044/62/000/005/023/072  
C111/C333

AUTHORS: Bykov, Ya.V., Imanaliyev, M.  
TITLE: On periodic solutions of integro-differential equations  
PERIODICAL: Referativnyy zhurnal, Matematika, no. 5, 1962, 78,  
abstract 5B351. ("Issled. po integro-differents. uravneniyam  
v Kirgizii". No. 1. Frunze, AN KirgSSR, 1961, 145-158)  
TEXT: Given are sufficient conditions for: 1) The existence of  
periodic solutions with the period  $\omega$  of the system of integro-different-  
ial equations

$$\begin{cases} \frac{dz}{dx} = Bz + k_1(x) + \lambda T_1[x, z(x), u(x)], \\ \frac{du}{dx} = A(x)u + k_2(x) + \lambda T_2[x, z(x), u(x)]; \\ Bv + k_1(x) + \lambda T_1[x, v(x), w(x)] = 0, \\ \frac{dw}{dx} = A(x)w + k_2(x) + \lambda T_2[x, v(x), w(x)], \end{cases} \quad (1)$$

$$\begin{cases} Bv + k_1(x) + \lambda T_1[x, v(x), w(x)] = 0, \\ \frac{dw}{dx} = A(x)w + k_2(x) + \lambda T_2[x, v(x), w(x)], \end{cases} \quad (2)$$

assuming that  $k_1(x+\omega)=k_1(x)$ ,  $B$  -- a constant  $n \times n$  - matrix;  $A(x+\omega)=A(x)$   
an  $m \times m$  - matrix;  $T_1(x, z, u)$  -- an operator which maps the  $(n+m)$ -  
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S/044/62/000/005/023/072  
C111/C333

On periodic solutions...

dimensional continuous vector function  $(z, u)$  with the period  $\omega$  on an  $n$ -dimensional continuous vector function with period  $\omega$ . 2) The convergence (for  $\varepsilon \rightarrow 0$ ) of the periodic solution of (1) to the periodic solution of (2). 3) The stability of the solutions of the system of integro-differential equations

$$\frac{du}{dx} = A(x)u + \mu(x) + \lambda \varphi(x, u(x)) + \lambda \int_0^{h(x)} \psi(x, s, u(s)) ds,$$

where the functions  $\mu(x)$ ,  $\varphi(x, u)$ ,  $\psi(x, s, u)$ ,  $h(x)$  have the period  $\omega$  with respect to  $x$ .

The proofs of the theorems which are concerned with the above given questions are based on the

Lemma: Let the following conditions be fulfilled: 1) The equation

$$\frac{du}{dx} = A(x)u \quad (3)$$

has no non-trivial solutions with the period  $\omega$ ; 2)  $W(x)$  is the fundamental matrix of (3), where  $W(0) = E$  is the unit matrix; 3)  $D = W(\omega)$ ;  $B = D - E$ ; 4)  $f(x + \omega) = f(x)$ . Then the periodic solution (with the period  $\omega$ )

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S/044/62/000/005/023/072  
0111/0333

On periodic solutions...

of the equation  $\frac{dp}{dx} = A(x)p + f(x)$  is representable in the form

$$p(x) = -W(x)B^{-1}D \int_x^{x+\omega} W^{-1}(s)f(s)ds.$$

[Abstracter's note: Complete translation.]

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IMANALIYEV, M.

Some Problems of the Theory of Non-linear Integral-differential Equations with  
Small Leading-derivative Parameters p. 22

TRANSACTIONS OF THE 2ND REPUBLICAN CONFERENCE ON MATHEMATICS AND MECHANICS  
(TRUDY VTOROY RESPUBLIKANSKOY KONFERENTSIY PO MATEMATIKE I MEKHANIKE), 184  
pages, published by the Publishing House of the AN KAZANET SSR, ALMA-ATA, USSR, 1962

ACCESSION NR: AT3013097

8/2757/62/000/002/0003/0020

AUTHORS: By\*kov, Ya. V.; Imanaliyev, M.

TITLE: Periodic, nearly periodic, and bounded solutions of one class of integro-differential equations with small parameter preceding the derivative

SOURCE: AN KirgSSR. Institut fiziki, matematiki i mekhaniki. Issledovaniya po integro-differentsial'ny'm uravneniyam v Kirgizii, no. 2, 1962, 3-20

TOPIC TAGS: integro differential equations, nonlinear integrodifferential equations, periodic solution, nearly periodic solution, bounded solution, small parameter, integral operator, existence theorem

ABSTRACT: The behavior is investigated of periodic, nearly-periodic, and bounded solutions of one class of integro-differential equations

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ACCESSION NR: AT3013097

with the highest-order derivative preceded by a small parameter.  
The symbolic form of this equation is

$$\mu \frac{dx}{dt} = F(z, y, t); \quad \frac{dy}{dt} = f(z, y, t), \quad (3)$$

where  $z$ ,  $y$ ,  $F$ , and  $f$  are vectors,  $F$  and  $t$  are integral operators, and  $\mu$  is the small parameter. Examples are given of integral operators which transform nearly-periodic, periodic, and bounded vector functions into almost periodic, periodic, and bounded vector functions, respectively. Existence theorems are derived for the periodic, almost periodic, and bounded solutions of nonlinear systems of integro-differential equations. Several theorems are derived regarding the behavior of the solutions of systems of integro-differential equations with small parameter at the derivative. Orig. art. has: 30 formulas.

ASSOCIATION: Institut fiziki, matematiki i mekhaniki AN KirgSSR  
(Institute of Physics, Mathematics and Mechanics, AN Kirg SSR)

Card 2/3



ACCESSION NR: AT3013098

8/2757/62/000/002/0021/0039

AUTHOR: Imanaliyev, M.  
~~Generalist-Mathematician~~

TITLE: Behavior of the solutions of systems of integro-differential equations with small parameter preceding the derivative

SOURCE: AN KirgSSR. Institut fiziki, matematiki i mekhaniki. Issledovaniya po integro-differentsial'ny'm uravneniyam v Kirgizii, no. 2, 1962, 21-39

TOPIC TAGS: integrodifferential equation, nonlinear integrodifferential equation, integrodifferential equation system solution, small parameter, Cauchy problem

ABSTRACT: It is pointed out that the theory of integro-differential equations (IDE) with small parameter preceding the highest order derivative (example -- energy transfer between inductively coupled electric network with small capacitances) differs from the theory of

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ACCESSION NR: AT3013098

differential equations with small parameter, so that an independent study of the former is of importance. General theorems are proved with respect to the solution of a general system of IDE

$$L_1(u, z) = \frac{du}{dx} + Au + Bz + \int_0^x [K_1(x-t)u(t) + K_2(x-t)z(t)] dt = f_1(x); \quad (1.1)$$

$$L_2(u, z) = \frac{dz}{dx} + Cu + Dz + \int_0^x [K_3(x-t)u(t) + K_4(x-t)z(t)] dt = f_2(x),$$

where A, B, C, D -- constant matrices,  $K_i(x)$  -- quasipolynomials in x with matrix coefficients, u,  $f_1$ ,  $f_2$ , z -- vectors. The conditions under which the solutions of the Cauchy problem converge to the solution of the system are examined. Orig. art. has: 32 formulas.

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ACCESSION NR: AT3013098

ASSOCIATION: Institut fiziki, matematiki i mekhaniki AN KirgSSR  
(Institute of Physics, Mathematics, and Mechanics, AN KirgSSR)

SUBMITTED: 00

DATE ACQ: 30Sep63

ENCL: 00

SUB CODE: MM

NO REF SOV: 005

OTHER: 001

Card 3/3

ACCESSION NR: AR4039296

S/0044/64/000/003/8080/8081

SOURCE: Ref. zh. Matematika, Bas. 3B380

AUTHOR: Imanaliyev, M.

TITLE: The behavior of solutions to Vol'terr type integro-differential equations with small parameter at a higher derivative

CITED SOURCE: Sb. Materialy\* 7-y Nauchn. konferentsii Kafedry\* vyssh. matem. Frunzensk. politekhn. in-t. Frunze, 1963, 12-19

TOPIC TAGS: Vol'terr integro-differential equation, function convergence, degenerate problem

TRANSLATION: For the problems

$$1) u^{(l)}(0, \varepsilon) = u^{(l)}(0) + w_l(\varepsilon); w_l(\varepsilon) \rightarrow 0, \varepsilon \rightarrow 0 \quad (l=0, 1),$$

$$au'' + Au' + Bu = \lambda \left( f(x, u) + \int_0^x K(x, t, u(t)) dt \right);$$

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ACCESSION NR: AR4039296

$$\begin{aligned} 2) \quad u^{(1)}(0) = a_1, \quad v^{(1)}(0) = b_1, \quad (t=0, 1), \quad u'' + Au' + Cu + \\ + \int_0^1 K(x, t) u(t) dt = -\lambda \left[ f(x, u, v) + \int_0^1 F(x, t, u, v) dt \right], \\ u'' + Bu' + Du + \int_0^1 Q(x, t) v(t) dt = -\lambda \left[ \psi(x, u, v) + \right. \\ \left. + \int_0^1 W(x, t, u, v) dt \right] \end{aligned}$$

the author proves the convergence of the functions  $u(x, \epsilon)$ ,  $v(x, \epsilon)$  to the solutions of the corresponding degenerate problems, when  $\epsilon \rightarrow 0$ . L. Krivoshein.

DATE ACQ: 22Apr64

SUB CODE: NA

ENCL: 00

Card 2/2

ACCESSION NR: AR4039297

S/0044/64/000/003/B081/B081

SOURCE: Ref. zh. Matematika, Abs. 3B381

AUTHOR: Imanaliyev, M.

TITLE: integro-differential equations with small parameter at higher derivatives

CITED SOURCE: Materialy\* 7-y Nauchn. konferentsii Kafedry\* vyssh. matem. Frunzensk. politekhn. in-t. Frunze, 1963, 20-26

TOPIC TAGS: integro-differential equation, Cauchy problem solution, degenerate problem

TRANSLATION: Under certain hypotheses with respect to known functions, the author proves: 1) the existence and uniqueness of the solution to the Cauchy problem for the system of integro-differentiation equations (s. i.-d. s.).

$$A\varphi'(x) + B\varphi(x) = f(x, \varphi) + \int_0^{\infty} K(x, t, \varphi(t)) dt, \varphi(0) = \alpha;$$

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ACCESSION NR: AR4039297

2) the convergence of the solution of the Cauchy problem  $u^{(1)}(0, \xi) = v^{(1)}(0)$  ( $i = 0, 1$ ) for the s. i.-d. e.

$$au'' + Au' + Bu = f(x, u) + \int_0^\infty K(x, t, u(t)) dt$$

to the solution of problem (1) when  $\xi \rightarrow 0$ . The author also considers the convergence of the solution  $u(x, \xi)$  of the Cauchy problem

$$u(0, s) = v(0) + w_1(s), \quad z(0, s) = w(0) + w_2(s)$$

for the s. i.-d. e.

$$\begin{aligned} u' + Au &= \lambda \left[ f_1(x, u, s) + \int_0^\infty f_2(x, t, u, s) dt \right], \\ as' + Bs + \int_0^\infty K(x, t) z(t) dt &= \lambda \left[ f_3(x, u, s) + \right. \\ &\quad \left. + \int_0^\infty f_4(x, t, u, s) dt \right], \end{aligned}$$

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ACCESSION NO: AR49027

where  $w_i(\xi) \rightarrow 0$ ,  $\xi \rightarrow 0$  ( $i = 1, 2$ ), to the solution of the corresponding degenerate problem ( $\xi = 0$ ). The solution of problem (3), (2) has the form

$$u(x, s) = v(x) + \sum_{i=1}^n v_i(x) \xi^i + v_0(x, s) + \xi_{n+1}(x, s),$$

where

$$z(x, s) = w(x) + \sum_{i=1}^n p_i(x) \xi^i + w_0(x, s) + \eta_{n+1}(x, s),$$

$$v_0(x, s), w_0(x, s) \rightarrow 0, s \rightarrow 0; \| \xi_{n+1}(x, s) \| + \| \eta_{n+1}(x, s) \| < M s^{\alpha+1};$$

$M = \text{const}$ ;  $v_i(x)$ ,  $p_i(x)$  are certain known functions. L. Krivoshein.

DATE ACQ: 22 Apr 64

SUB CODE: MA

ENCL: 00

Card 3/3



1. 100-65 870000 100000

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$$L_1(x, y) = \frac{dx}{dt} + C(x, y) + D(x, y) + \int_0^x (K_1(x, y) +$$

$$L_2(x, y) = \frac{dy}{dt} + E(x, y) + F(x, y) + \int_0^y (K_2(x, y) +$$

$$L_3(x, y) = \frac{dz}{dt} + G(x, y, z) + H(x, y, z) + \int_0^z (K_3(x, y, z) +$$

$$\frac{dx}{dt} + D(x, y) + \int_0^x K_1(x, y) dy - \lambda \gamma_1(x, y)$$

SUB CODE: 10A

ENCL: 00

Page 1 of 1

IMANALIYEV, M.I. (Frunze); KAKISHOV, K.B. (Frunze)

Theory of optimal systems with residual effect. Izv. mat. i  
mekh. 28 no.3:534-536 My-Je'64 (NIIA 1747)

ACC NR: AP 6(07885)

SOURCE CODE: UR/019W/66/007/001/0061/0069

AUTHOR: Vasil'yeva, A. B.; Imanaliyev, M.

ORG: none

TITLE: Asymptotics of solutions of the Cauchy problem for an integro-differential equation with a small parameter multiplying the derivative

SOURCE: Sibirskiy matematicheskiy zhurnal, v. 7, no. 1, 1966, 61-69

TOPIC TAGS: Cauchy problem, integro differential equation, asymptotic solution

ABSTRACT: The behavior of solutions  $y(x, \mu)$  when  $\mu \rightarrow 0$  of the Cauchy problem for the integro-differential equation

$$\mu y' + P(x)y = \lambda \int_0^1 K(x, t)y(t)dt, \quad (1)$$

$$y(0) = y^0, \quad (2)$$

where  $\mu > 0$  is a small parameter, is studied under the assumption that  $P(x)$  and  $K(x, t)$  are continuous on the intervals  $0 \leq x \leq 1$ ,  $0 \leq t \leq 1$ ,

Cord 1/2

UDC: 517.948.34

ACC NR: AP6007885

and  $P(x) > 0$ . It is shown that the problem (1)-(2) under certain conditions of smoothness of  $P(x)$  and  $K(x,t)$  has solutions which tend at  $\mu \rightarrow 0$  to a certain linear combination of the form

$$A_1 \varphi_1(x) + \dots + A_m \varphi_m(x), \quad (3)$$

where  $\varphi_1(x), \dots, \varphi_m(x)$  are eigenfunctions of equation (1) when  $\mu = 0$ , and  $A_1, \dots, A_m$  are certain unknown coefficients. A procedure is presented for determining their value. The asymptotics of the solutions  $y(x, \mu)$  with the remainder term of the  $\mu^{n+1}$  order is constructed. The asymptotic behavior of the solutions of the Cauchy problem for the non-homogeneous equation

$$\mu y' + P(x)y = \lambda \int_0^1 K(x,t)y(t)dt + f(x). \quad (4)$$

is also considered. The asymptotics of the solution is constructed by means of a method similar to that used in problem (1)-(2). Orig. art. has: 27 formulas. [LK]

SUB CODE: 12 SUBM DATE: 21Jan65/ ORIG REF: 006/ ATD PRESS: 4222

Card 212 BK

"Clinical-Epidemiological Character of Endemic (Murine) Exanthematous Typhus," by S. A. Semashko, Hospital Inmen N. A. Semashko (Baku), Zhurnal Mikrobiologii, Epidemiologii, Immunobiologii, No 3, Mar 57, pp 47-53

The author describes the similarities and differences between endemic (murine) rickettsiosis and epidemic exanthematous typhus and reports on special studies made at the (Baku) First City Clinical Hospital Inmen Semashko since an outbreak of the disease in 1949. He describes the characteristics of each disease and points out that murine rickettsiosis can be enzootic among the rodent population without an epidemic necessarily being present in humans, but that no human epidemic is possible without infection of rodents. This is borne out by the comparatively insignificant contagion index of murine rickettsiosis where flea infestation is absent among the diseased rats.

Wherever two or three cases of murine rickettsiosis were discovered, direct clinical determination of the disease was felt to be necessary. Clinical differentiation between epidemic exanthematous typhus and murine rickettsiosis was difficult, but of decided epidemiological importance.

The cases of human infection were usually found to be connected with the consumption of food products contaminated by the urine of infected rodents or by flea excrement. Comparative statistics on the incidence of each disease are given. (U)

Sum. N 1451

IMAMALIYEV

IMAMALIYEV, S.A., Doc Med Sci —(diss) " <sup>endemic</sup> ~~typhus~~ typhus ~~fever~~ in  
the city of Baku." Baku, 1953. 34 pp (Azerb <sup>endemic</sup> Baku Med Inst in N. Kari-  
manov), 220 copies. "List of author's works", pp 63-64 (12 titles)  
(KI, 24-58, 122)

-87-

IMAMALIYEV, S.A.

Endemic (rat) typhus. Azerb.med.zhur. no.11:57-60 N '58 (MIRA 11:12)

1. Iz respublikanskoy sanitarnoy epidemiologicheskoy stantsii  
(glavvrach M.I. Velibekov).  
(TYPHUS FEVER)



"APPROVED FOR RELEASE: 04/03/2001

CIA-RDP86-00513R000618530003-5

APPROVED FOR RELEASE: 04/03/2001

CIA-RDP86-00513R000618530003-5"

IMAMALIYeva, G.M.

Clinical importance of color sedimentation reaction of urine in  
brucellosis. Lab.delo 2 no.2:14-17 Mr-Ap '56. (MLRA 9:10)

1. Iz kafedry infektsionnykh bolezney (sav. - prof. M.O.Safaralibekov) Azerbaydzhanskogo meditsinskogo instituta.  
(URINE) (BRUCELLOSIS) (MEDICAL TESTS)

IMAMALIEVA, G.M.; KHANUKAYEVA, R.S.

Combined treatment in brucellosis with levomycetin and  
gamma globulin. Azerb. med. shur. no.1:21-25 Ja '62.  
(BRUCELLOSIS) (CHLOROMYCETIN) (GAMMA GLOBULIN)

ALBANIA / Zooparasitology. Parasitic Worms

G-2

Abs Jour : Ref Zhur - Biol., No. 8, 1958, No 33958

Author : Inami, Papavrami

Inst : Not given

Title : Four Cases of Fasciolosis against a Background of Fasciola  
Hepatica Invasion. -- Chetyre sluchaya fastsiolaza na pochve  
invazii Fasciola hepatica.

Orig Pub : Bul. shkenc. natyr., 1956, NO. 2, 49-75

Abstract : For the first time in Albania cases of fasciolosis were  
identified in humans.

Card 1/1

SOKOLOVA, Ye.I. [deceased]; BRAYNZAROVA, G.T.; BOCHANOVA, N.S.;  
ZHIKHAREVA, V.I.; ZAKUMBAYEV, A.K.; ISAYEVA, M.G.;  
~~IMAMBAYEVA, U.A.~~; KRIVOSHEYEV, Yu.O.; KUDAYHEIMENOV,  
Zh.D.; KUKHARICHIN, S.; TYUTYUKOV, F.M.; SHIM, P.S.;  
LAZARENKO, Ye.I.; GARANKINA, A.I.; D'YACHENKO, R.;  
PETUKHOV, R.M., kand. tekhn. nauk, nauchn. red.;  
SHUPLOVA, M.A., red.; LEVIN, M.L., red.; ROROKINA, Z.P.,  
tekhn. red.

[Food industry of Kazakhstan] Pishchevaia promyshlennost'  
Kazakhstana. Alma-Ata, Izd-vo AN KazSSR, 1963. 172 p.

1. Akademiya nauk Kazakhskoy SSR, Alma-Ata. Institut eko-  
nomiki.

(Kazakhstan--Food industry)

ABDULIYEV, I.K.; CASANOV, D.O.; IMANGULIYEV, S.D.

Studying the progeny ( $F_1$ ) of intraspecific and interspecific hybrids of cultivated silkworm races. Dokl. AN Azerb. SSR 17 no.10:947-952 '61. (KIRA 14:12)

1. Institut genetiki i selektsii AN AzSSR.  
(Azerbaijan--Silkworm breeding)

IMAMITDINOV, F.S.; NEPRIMEROV, N.N.; SHEKUN, L.Ya,

Magnetic birefringence of microwaves in paramagnetic materials.  
Zhur. eksp. i teor. fiz 34 no.4:1019-1021 Ap '58. (MIRA 11:5)

1.Kazanskiy gosudarstvennyy universitet.  
(Microwaves)

ABBULLAYEV, I.K.; ALIYEV, M.O.; IMAMKULIYEV, S.D.

Improved highly productive varieties of the mulberry tree for the Karabakh zone. Dokl. AN Azerb. SSR 19 no.11:87-90 '63. (MIRA 17:3)

1. Institut genetiki i selektsii AN AzSSR.



ABDULLAYEV, I.K.; ALIYEV, M.O.; IMAMKULIYEV, S.D.

Some problems of the biology of the flowering and fruiting of the  
mulberry grown for feeding silkworms. Izv. AN Azerb. SSR. Ser. biol.  
nauk no.5:25-31 '64. (MIRA 18:4)

NABIYEV, M.N., akademik; IMAMNAZAROV, N.

Corrosion resistance of certain materials during the decomposition  
of phosphates and potassium chloride by nitric acid. Uzb. khim.  
zhur. no. 2:3-12 '60. (MIRA 14:1)

1. Institut khimii AN UzSSR. 2. AN UzSSR (for Nabiyeu).  
(Phosphates) (Potassium chloride) (Nitric acid)  
(Corrosion and anticorrosives)

IMAMNAZAROV, N.; NABIYEV, M.N.

Corrosion resistance of some materials during the nitric acid  
decomposition of phosphates and potassium chloride, Uzb. khim.  
zhur. 7 no.4:6-10 '63. (MIRA 16:10)

1. Institut khimii AN UzSSR.

ALIMOV, Sh.A., professor; ~~ZHAKOV, I. I.~~

Combined antibacterial and tuberculin therapy of pulmonary and extra-pulmonary tuberculosis. Probl. tub. no.6:38-42 M-D '54. (MLRA 8:1)

1. Iz klinicheskogo otdeleniya Usbekakogo nauchno-issledovatel'skogo tuberkuleznogo instituta (sav. klinikoy-prof. Sh.A.Alimov)

(TUBERCULOSIS, PULMONARY, therapy

PAS, streptomycin & tuberculin)

(PARA-AMINOSALICYLIC ACID, ther.

tuberc, pulm., with streptomycin & tuberculin)

(STREPTOMYCIN, ther. use

tuberc., pulm., with PAS & tuberculin)

(TUBERCULIN, ther. use

tuberc., pulm., with PAS & streptomycin)

VAKHIDOV, V.V., dotsent; AZIZOV, N.A.; IMAMOV, I.Kh.

Late results of lung resection in tuberculosis. Probl. tub. 42  
no.8:28-32 '64. (MIRA 18:12)

1. Kafedra obshchey khirurgii (ispolnyayushchiy obyazannosti  
zaveduyushchego - dotsent V.V.Vakhidov) lechatnogo fakul'-  
teta Tashkentskogo meditsinskogo instituta i khirurgicheskoye  
otdeleniye protivotuberkuleznogo dispansera No.2 (glavnyy  
vrach N.A.Azizov), Tashkent.

CHZHOU TSZIN-LIAN [Chou Chin-liang]; IMAMOV, R.M.; PINSKER, Z.G.

Electron diffraction study of the system Ag - Te in thin  
layers. Kristallografiia 6 no.5:772-773 SMO '61. (MIRA 14:10)

1. Institut kristallografi AN SSSR.  
(Electron diffraction examination) (Silver) (Tallman:1961)

PINSKER, Z.G.; IMAMOV, R.M.

Electron diffraction study of the compound  $\text{AgSbTe}_2$ . Kristallografiia  
9 no.4:556-557 J1-Ag '64. (MIRA 17:11)

1. Institut kristallografi AN SSSR.

Maxwell, J. W. (1964) *Journal of Chemical Physics*, 40, 2207-2212

TITLE: Determination of the crystal structure of  $\text{BaSbSe}_6$

Author: J. W. Maxwell, 1964, vol. 6, 1964, 853-856

Author: J. W. Maxwell, 1964, vol. 6, 1964, 853-856





ZAV'YALOVA, A.A.; IMAMOV, R.M.; PINSKER, Z.G.

Electron diffraction study of the Bi-O system in thin films.  
Kristallografiia 9 no.6:857-863 N-D '64.

(MIRA 18:2)

1. Institut kristallografi AN SSSR.

... attributed to lattice distortions. Since extensive work has been done with two-component semiconductor compounds while the more complex ternary compounds have received little attention, the authors of this article made an electron diffraction study of the compound  $\text{Ag}_2\text{Te}$ . The compound was vaporized and con-

ACCESS TO THE AREA

GOMBOSUREN, S.; IMAMOV, T.

Regulating wages of underground workers of the coal mining  
industry in the Mongolian People's Republic. Bial. nauch.  
inform.: trud i zar. plata 3 no. 10:54-57 '60. (MKRA 13:12)

1. Sotrudniki otdela truda i zarplaty Ministerstva Promyshlennosti  
Mongol'skoy Narodnoy Respubliki.  
(Mongolia--Coal mines and mining)  
(Mongolia--Wage--Payment systems)

COMBOSUREN, S.; IMAMOV, T.

Wage schedule and work classification in the industry of the Mongolian People's Republic. Biul. nauch. inform.: trud i zar. plata  
4 no.11:62-64 '61. (MIRA 14:12)  
(Mongolia--Job description)

21 7100

87,15  
S/166/60/000/005/007/008  
C111/C222

AUTHORS: Akbayev, R.A., Mazitov, B.S. and Imamov, T.Ich.

TITLE: The Enlargement of the Sensitivity for the Gamma-Defectoscopic Control

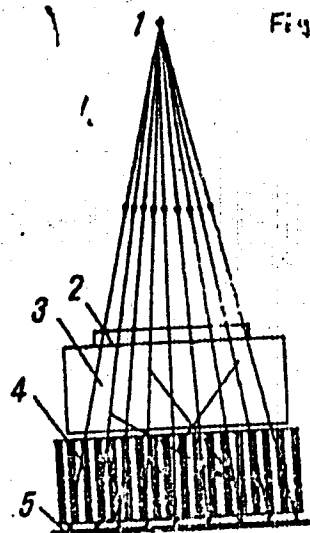
PERIODICAL: Izvestiya Akademii nauk Uzbekskoy SSR, Seriya fiziko-matematicheskikh nauk, 1960, No.5, pp.80-82

TEXT: For the investigation with the aid of the gamma radiation of samples of a material whether there are defects (foreign bodies, cavities etc.), the thickness  $\delta$  of the sample is of great importance. With an increasing  $\delta$  the sensitivity of the method decreases rapidly since in big samples the primary  $\gamma$ -radiation is scattered and, by this secondary radiation, the image becomes unclear. For this reason the authors propose to put an absorbing intermediate layer (fig.1) between the sample and the film, which consists of parallel (running in the direction of the primary  $\gamma$ -radiation) lead plates of the thickness 0.3 mm; between them there are papers of the same thickness. Thus it is reached that the primary radiation reaches the plate without any hindering while the scattered radiation is absorbed. The experiments (gamma-rays of  $\text{Cs}^{137}$  and  $\text{Ir}^{192}$ ) carried out with the proposed arrangement show a clear sharpening of the image (fig.3).

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C111/C222

The Enlargement of the Sensitivity for the Gamma-Defectoscopic Control



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S/166/60/000/005/007/008  
C111/C222

The Enlargement of the Sensitivity for the Gamma-Defectoscopic Control

Fig.3: Defectoscopic photo (a) and photo (b) of the standard (in (a) one half is with and one half is without an absorbing intermediate layer). There are 3 figures and 4 Soviet references.

ASSOCIATION: Institut yadernoy fiziki AN Uz SSR (Institute of Nuclear Physics of the Academy of Sciences Uzbekskaya SSR)

SUBMITTED: June 7, 1960

Card 5/5

L 12023-66 EWT(m)/EWA(h)

ACC NR: AT5028947

SOURCE CODE: UR/0000/63/000/000/0210/0212

AUTHOR: Imamov, T. Kh.; Nazitov, B. S.

ORG: none

TITLE: Determination of the spectral sensitivity of gamma ray detectors by means of a single source

SOURCE: Vsesoyuznyy seminar po primeneniyu radioaktivnykh izotopov v izmeritel'noy tekhnike i priborostroyenii. Frunze, 1961. Radioisotopnyye metody avtomaticheskogo kontrolya (Radioisotope methods of automatic control); trudy rasshirennogo soveshchaniya, v. 1. Frunze, Izd-vo AN KirgSSR, 1963, 218-222

TOPIC TAGS: gamma particle detector, gamma radiation, radiation sensitivity

ABSTRACT: The efficiency of a gamma detector is given by the ratio

$$\eta = \frac{N}{N_0}, \quad (1)$$

where  $N$  is the number of quanta which give rise to a current pulse, and  $N_0$  is the total number of quanta incident on the detector. The spectral sensitivity of counters and ionization chambers can be found by a

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L 12023-66

ACC NR: AT5028947

single standard gamma source. This method is based on changes in the wavelength of gamma rays during the Compton effect. If the conditions of measurement are chosen so that the following relation applies:

$$\frac{1}{R_2^2} \cdot \frac{d\sigma}{d\Omega} = \text{const}, \quad (2)$$

where  $d\sigma/d\Omega$  is the differential cross section of Compton scattering per unit solid angle and  $R_2$  is the distance from the scatterer to the detector, the convenient dependence

$$\eta(E) = \text{const} \cdot n(E), \quad (3)$$

is obtained, where  $E$  is the gamma ray energy and  $n = n(E)$ . For a monochromatic source  $d\sigma/d\Omega$  depends only on the scattering angle and hence in order for (2) to apply, a corresponding change of  $R_2$  is necessary. Physically, (2) means that the number of quanta which can be measured remains constant independent of the scattering angle. Curves obtained on the basis of (2) for gamma rays of  $\text{Cs}^{137}$ ,  $\text{Zn}^{65}$ , and  $\text{Na}^{24}$  are plotted. The use of harder gamma radiation makes it possible to cover a wider energy range, since the change in the hardness of the scattered gamma radiation is expressed by

$$\frac{\omega}{\omega_0} = \frac{1}{1 + \omega_0(1 - \cos\theta)}, \quad (4)$$

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L 12023-66

ACC NR: AT5028947

where  $\omega$  is the energy of the quantum and  $\omega_0$  is at 0. Calculations based on these formulas were carried out for the efficiency of STS-5, STS-6, and STS-2 counters, and the results agreed with those obtained by other authors. Orig. art. has: 8 figures, 9 formulas.

SUB CODE: 18/ SUBM DATE: 21Mar63/ ORIG REF: 004/ OTH REF: 001

HW

Card 3/3

L 23711-00 EWT(m)/BTC(f)/EWG(m)/EWP(t) IJP(c) KIW/JD

ACC NR: AP6008692

SOURCE CODE: UR/0291/65/000/005/0053/0058

AUTHOR: Imamov, T. Kh.; Abrarov, O.

ORG: Institute of Nuclear Physics, AN UzSSR (Institut yadernoy fiziki AN UzSSR)

TITLE: Cathodic polarization of tellurium in acid media

SOURCE: Uzbekskiy khimicheskiy zhurnal, no. 5, 1965, 53-58

TOPIC TAGS: tellurium, electrodeposition, cathode polarization

ABSTRACT: The object of the work was to study the kinetics of the cathodic process during the electrodeposition of tellurium from hydrofluoric and sulfuric acid solutions. The process involves the formation of cathodic tellurium which adheres well to the cathode and has a metallic luster; this considerably simplifies the technology of recovery of cathodic tellurium from a bath. It was found that as the tellurium concentration and temperature of the electrolyte rise, the cathodic polarization decreases. The high temperature coefficient of the polarization is attributed to the fact that the electrode process involves the reduction of complex tellurium cations, tetravalent tellurium being reduced. It was shown experimentally that as the electrolyte temperature rises and the polarization decreases, the tellurium electrodeposit obtained is fine-grained. The optimum conditions of electrodeposition of tellurium were determined; a dense deposit with metallic luster and good adhesion to the electrode

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L 23711-66

ACC NR: AP6008692

is obtained at a  $\text{TeO}_2$  concentration of 1.5 N, a temperature of  $30^\circ\text{C}$ , and a cathodic current density of  $50\text{--}100\text{ mA/cm}^2$ . Orig. art. has: 3 figures, 1 table.

SUB CODE: 07/      SUBM DATE: 06Aug64/      ORIG REF: 008/      CTH REF: 002

Card 2/2 *La*

USSR/Chemistry - Conversion processes

Card 1/1 Pub. 22 - 28/56

Authors : Mekhtiev, S. D.; Aliev, A. F.; and Imamova, S. M.

Title : Method of direct conversion of cyclic ketones into homologous polymethyl hydrocarbons

Periodical : Dok. AN SSSR 99/5, 773-776, Dec 11, 1954

Abstract : A method for direct conversion of cyclic ketones into homologous polymethyl hydrocarbons, through catalytic hydrogenation, is described. The results obtained during the synthesis of cyclopentane and cyclonekane, during one phase of hydrogenation of homologous ketones in a running system at an atmospheric pressure over an Ni-catalyst, are listed. The results obtained from the distillation of the hydrogenation products and the chemical properties of the fractions derived are tabulated. Five USSR references (1924-1950). Tables.

Institution : Academy of Sciences USSR, Petroleum Institute

Presented by: Academician A. V. Topchiev, July 5, 1954

3/058/61/000/011/008/025  
A05B/A101

5.5450

AUTHORS: Imamutdinov, F.I., Shekun, L.Ya.

TITLE: Fine structure of paramagnetic resonance rotation

PERIODICAL: Referativnyy zhurnal. Fizika, no. 11, 1961, 130, abstract 11V261 (V  
sb. "Paramagnitn. rezonans", Kazan', Kazansk. un-t, 1960, 153)

TEXT: The authors examine theoretically the effect of internal electric fields on paramagnetic resonance rotation. It is shown that the rotation curve must have a fine structure analogous to that of paramagnetic resonance absorption. Rotation corresponding to individual lines of the fine structure may have different signs as a function of the character of the change in energy with the magnetic field. The fine structure of rotation was observed in corundum single crystals with  $\text{Cr}^{3+}$  ions. ✓B

[Abstracter's note: Complete translation]

Card 1/1



56-34-4-45/60

AUTHORS: Imamutdinov, F. S., Neprimerov, N. M., Shokun, L. Ya.

TITLE: The Magnetic Double Refraction of Microwaves in Paramagnetics  
(Magnitnoye dvoynoye luchepreromleniye mikrovoln v paramagnetikakh)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol. 34, Nr 4, pp. 1019 - 1021 (USSR)

ABSTRACT: At the frequency of 9375 megacycles the authors investigated the rotation of the polarization plane of the wave  $H_0$  in a circular wave guide filled with paramagnetic salt as function of the field strength of the external magnetic field  $H$  which was arranged vertical to the direction of the propagation of the radiowave. The gradual transition of a rectangular standard-wave guide to a circular waveguide of a diameter of 3 mm served as polarizer. A rotating Turnikett-link served as analyzer. The angle of rotation does not depend on the sign of  $H$  but on the angle  $\psi$  between  $H$  and the magnetic field  $H$  of the radiowave prior to its entering the paramagnetic. This dependence obeys the law  $\Delta\psi \sim \sin 2\psi$ , so that the maximum effect is observed at  $\psi = 45^\circ$ . A diagram

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The Magnetic Double Refraction of Microwaves in Paramagnetics

56-34-4-45/60

shows as an example the curve of the specific rotation of a powdery sample of  $MnCl_2 \cdot 4H_2O$ . This rule may be explained as follows: The rotation of the polarization plane is dependent on the anisotropy of the magnetic permeability. A formula is written down for the tensor of the magnetic high frequency susceptibility of the paramagnetic. The calculation is carried out for the free space and the discussed considerations show the following: The magnetic double refraction of microwaves in paramagnetics (Kotton-Muton effect for microwaves) depends in a high degree on the paramagnetic absorption in vertical and parallel fields. A more accurate description of the results obtained will follow in a work to follow. There are 1 figure and 10 references, 6 of which are Soviet.

ASSOCIATION: Kazanskiy gosudarstvennyy universitet  
(Kazan' State University)

SUBMITTED: January 10, 1958

1. Microwaves---Refraction 2. Microwaves---Magnetic factors

Card 2/2

24,7700(1056,1147,1154)

AUTHOR: Imamutdinov, F. S.

31723  
S/057/61/031/012/010/013  
B104/B112

TITLE: Fine and hyperfine structures of paramagnetic rotation resonance

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 12, 1961, 1472-1476

TEXT: The fine structure of the paramagnetic rotation resonance of the polarization plane of microwaves ( $\lambda = 3$  cm) in chrome corundum was studied at room temperature (Fig. 1).  $H_0$  of the microwaves was oriented parallel

and perpendicular to the crystal axis. The experimental layout was described previously (N. N. Neprimerov, Izv. AN SSSR, ser. fizich., 18, no. 3, 1954; 21, no. 9, 1288, 1957). Its principal part is a twelve-pole waveguide junction. Measurements were made on disk-shaped specimens (9 mm diameter, 3 mm thick) of a chrome-corundum single crystal ( $Al_{1-x}Cr_x)_2O_3$  with  $x = 0.009$ . The crystal axis was oriented perpendicular

to the disk plane. Similar to the paramagnetic absorption resonance, three lines were observed. Resonance fields of 650, 3400, and 7500 were

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Fine and hyperfine structures...

31723  
S/057/61/031/012/010/013  
B104/B112

obtained for the transitions  $3/2 \leftrightarrow 1/2$ ,  $-1/2 \leftrightarrow 1/2$ ,  $1/2 \leftrightarrow 3/2$ . Paramagnetic rotation resonance was also observed at the free radical of  $\alpha$ - $\alpha$ -diphenyl- $\beta$ -picrylhydrazyl. By means of the spin Hamiltonian  $\hat{H} = D(\hat{S}_z^2 - 5/4 + g\beta\vec{H}_0\vec{S})$ , the energy levels and wave functions were calculated for  $\text{Cr}^{3+}$  in corundum ( $|D| = 0.19 \text{ cm}^{-1}$ ,  $g = 1.98 \text{ cm}^{-1}$ ). Thus, the fine structure of the paramagnetic rotation resonance in chrome corundum ( $H_0 \parallel C$ ) should be calculated from L. Ya. Shcherba's equation

$$\chi_{xy} = \frac{N g^2 \beta^2}{kT(2S+1)} \sum_{k,n} (S_x)_{kn} (S_y)_{nk} \frac{\omega_{kn} + \frac{1}{\tau}}{\omega_{kn} - \omega + \frac{1}{\tau}}, \quad (2)$$

(Izv. AN SSSR, ser. fizich., 20, no. 11, 1265, 1956), where  $\omega_{kn} = (\omega_k - \omega_n)/\tau$ ,  $\tau$  is the time average between collisions of the gas atoms, and  $(S_x)_{kn}$  and  $(S_y)_{kn}$  are the matrix elements of the spin components. Resonance fields of 612, 3515, and 7642 oe were obtained. In manganese apatites where the  $\text{Ca}^{2+}$  ions were partly replaced by  $\text{Mn}^{2+}$  ions, paramagnetic rotation

Card 2/4

Fine and hyperfine structures...

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resonance was also observed. This spectrum has the same lines as that of paramagnetic rotation absorption. This paper was read at the XIII Vsesoyuznoye soveshchaniye po spektroskopii (XIII All-Union Conference on Spectroscopy) held in Leningrad in July, 1960. A. S. Bechuk, R. P. Bashuk, L. M. Kharitonova, and L. P. Sorokina are thanked for supplying chrome-corundum specimens, and L. Ya. Shekun for discussions. There are 5 figures and 7 references: 6 Soviet and 1 non-Soviet.

ASSOCIATION: Kazanskiy gosudarstvennyy universitet im. V. I. Ul'yanova-Lenina (Kazan' State University imeni V. I. Ul'yanov-Lenin)

SUBMITTED: February 8, 1961

Fig. 1. Block diagram of experimental arrangement.

Legend: (KГ) klystron generator; (EP) ferrite decoupler; (EG) phase shifter; (Г) turnstile joint; (П) detector; (VЧЧ) low-frequency amplifier; (ЭС) cathode-ray oscilloscope; (H) load.

Card 3/4  
3

L 12222-63  
ACCESSION NR: AP3002930

9/0076/63/037/006/1288/1291

AUTHOR: Zdanovskiy, A. B.; Imanutdinova, V. M.

TITLE: Mechanism of borate decomposition by sulfuric acid solution

SOURCE: Zhurnal fizicheskoy khimii, v. 37, no. 6, 1963, 1288-1291.

TOPIC TAGS: borate decomposition, gypsum, borate, sulfuric acid, inoite, colemanite, hydroboracite, ulexite, solvent cycling method.

ABSTRACT: The rate of dissolution of gypsum,  $H_2O$  sub 3 and four naturally occurring borates, inoite, colemanite, hydroboracite, and ulexite, in  $H_2SO_4$  sub 4 solutions at 25 and 50 degrees has been determined, using the solvent cycling method in a close system. Gypsum films are formed on the surfaces of the dissolving crystals, which thereby limits the process of decomposition of the calcium borates in  $H_2SO_4$  sub 4. The dissolution rates with respect to calcium referred to its content in unit volume of the mineral give curves with maxima. Orig. art. has: 4 figures and 6 equations.

ASSOCIATION: Kazanskiy gosudarstvennyy universitet (Kazakh State University)

Card 1/2

ZDANOVSKIY, A.B.; IMAMUTDINOVA, V.M.

Kinetics of solution of natural borates in hydrochloric acid  
solutions. Zhur. prikl. khim. 36 no.8:1675-1680 Ag '63.  
(MIRA 16:11)

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Effect of organic mineral microfertilizers and processed gumbrin  
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 starshiy prepodavatel'; BAYBULATOV, E.B., mladshiy nauchnyy  
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1. Akademiya nauk Kirgisskey SSR, Frunze. 2. Institut khimii AN Kirg.SSR (for Kydynov). 3. Kirgisskiy gosudarstvennyy universitet (for Bugubayev). 4. Institut geologii AN Kirg.SSR (for Baybulatov). 5. Institut vednogo khozyaystva i energetiki AN Kirg.SSR (for Filippev). 6. Otdel fiziki i matematiki AN Kirg.SSR (for Mambetakanov, Imankulev). 7. Institut zoologii i parazitologii AN Kirg.SSR (for Turmambetov). 8. Kirgisskiy meditsinskiy institut (for Mukhamedsiyev). 9. Otdel pechvovedeniya AN Kirg.SSR (Ashirakhmanov). 10. Institut botaniki AN Kirg.SSR (for Alyshbayev, Sultanaliyev, Akhmetov, Polanova, Nikitinskiy). 11. Institut istorii AN Kirg.SSR (for Dalmambayev).

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[Reaction of saccharose with sodium, potassium, calcium, and  
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X-ray diffraction study of solid phases in ternary aqueous systems consisting of nickel, sodium, and aluminum sulfates at 25-65 C. Zhur.strukt.khim. 3 no.1:51-63 Ja-P '62. (MIRA 15:3)

1. Institut obshchey i neorganicheskoy khimii imeni N.S.Kurnakova  
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VAZHEYKO, I.V., red. izd-va; ANOKHINA, M.G., tekhn. red.

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(Alkaline earth chlorides)

IMANAKUNOV, B., etv. red.

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1. Akademiya nauk Kirgizskoy SSR, Frunze. Institut neorga-  
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IMANALIEV M.

USSR / Farm Animals. Small Horned Stock.

C-2

Abs Jour: Ref Zhur-Biol., No 23, 1958, 105702.

Author : Volkova, A., Imanaliyev, M.

Inst : Not given.

Title : Analysis of the Causes of Loss of Sheep During Lambing.

Orig Pub: Kyrgyzstandyn ayyl charbasy, 1958, No 1, 2-6;  
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Abstract: In analyzing the causes of loss of sheep during lambing at the kolkhoz im. Lenin in Atbashinskiy Rayon, it was found that 60% of the sheep which perished were over six years of age. The main causes of death were: obstruction of psalterium, retention of placenta, endometritis and inability

Card 1/2

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8196/105 NOV 1964

Akademiya nauk Kirgizskoy SSR

*Izvestiya. Seriya yestestvennykh i tekhnicheskikh nauk, tom 1, vyp. 1*  
(News. Series on Natural and Technical Sciences, Vol 1, No. 1)  
Prague, 1950. 164 p. 500 copies printed.

WM : V T. Kashirya: Tech. Ed.: M.G. Anokhina.

**PURPOSE:** This book is intended for research scientists and teachers in institutes of higher education who may be interested in developing and teaching students in various scientific fields.

**COVERAGE:** The book contains 12 articles by persons affiliated with the Academy of Sciences of the USSR, and is divided into physical chemistry, industrial engineering, applied physics (blasting dynamics), electric engineering, electronics, astronomy, metallurgy, pure mathematics, etc. A bibliography of 1957 publications of the Academy includes works on history, archeology, geodesy, mathematics, literature, geology, biological sciences, zoology, medicine, and weapons. Most of the articles are mentioned.

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